



UNIVERSITY OF JAFFNA, SRI LANKA

BACHELOR OF SCIENCE IN MEDICAL LABORATORY SCIENCES

SECOND YEAR SECOND SEMESTER EXAMINATION- FEBRUARY 2017

MLSHE 2235 HAEMATOLOGY II

PAPER II

Date: 13.02.2017

Time: 2 Hours

ANSWER ALL EIGHT QUESTIONS.

1. The haemostatic mechanisms have several important functions.
 - 1.1. List the major components of normal haemostasis. (20 marks)
 - 1.2. Draw a schematic representation of the coagulation cascade. (80 marks)

2. Prothrombin Time (PT), Activated Partial Thromboplastin Time (APTT) are two of the basic coagulation investigations.
 - 2.1. Briefly describe the principle of the following tests.
 - 2.1.1. PT (20 marks)
 - 2.1.2. APTT (20 marks)
 - 2.2. Briefly describe how the steps in pre-analytical phase affect leading to inaccurate PT & APTT test results. (60 marks)

3.
 - 3.1. Describe the principle of "Parallel Line Bioassays" of Coagulation Factor VII based on PT. (20 marks)
 - 3.2. State the name of the test used to screen the presence of inhibitors for circulating coagulation factors and briefly describe the principle of the test. (40 marks)
 - 3.3. Briefly outline the method of the test mentioned in 3.2. (40 marks)

4.
 - 4.1 Briefly describe how you would prepare pooled normal plasma for coagulation studies. (30 marks)
 - 4.2
 - 4.2.1 Briefly describe the principle of the osmotic fragility test. (20 marks)
 - 4.2.2 Outline how sample is best prepared for osmotic fragility test. (20 marks)
 - 4.2.3 Briefly outline how you would perform osmotic fragility test. (30 marks)
5.
 - 5.1. Describe the principle of the neutrophil alkaline phosphatase (NAP) score. (20 marks)
 - 5.2. List four (04) important technical considerations you should think about the above mentioned technique. (20 marks)
 - 5.3. State briefly how to assure quality of the NAP score test. (20 Marks)
 - 5.4. Briefly discuss the uses of cytochemistry in diagnosis of haematological neoplasia. (40 marks)
6. Write short notes on
 - 6.1. PFA- 100 system. (50 marks)
 - 6.2. Perl stain. (50 marks)
7. A 4 months old infant presents with pallor and hepatosplenomegaly. Thalassaemia major was suspected and transferred to teaching hospital for further evaluation. Paediatrician requests following tests: Full Blood Count (FBC), Blood Picture (BP), Reticulocyte count, Serum bilirubin.
 - 7.1. Describe the appropriate blood samples you would receive at the laboratory for the tests mentioned. (10 marks)
 - 7.2. State the important precautions you need to take when transporting these blood samples to the laboratory. (10 marks)
 - 7.3. State four (04) different rejection criteria for samples received for FBC and describe briefly how you would check for them. (10 marks)
 - 7.4. State four (04) important findings you expect in the blood smear of this patient which favours the diagnosis of thalassaemia major. (10 marks)

- 7.4.1. Briefly discuss how to troubleshoot automated White Blood Cell (WBC)/Differential Count (DC) report of this patient. (if the patient is having thalassaemia major). (20 marks)
- 7.5. Describe the principle of reticulocyte count and state how you would ensure quality of the test. (20 marks)
- 7.6. Draw and label the stages of reticulocytes. (20 marks)
8. A 56 year-old male presents with fever and vague ill health. Examination reveals splenomegaly. Automated Full Blood Count (FBC) revealed total leukocyte count of $67,000/\mu\text{l}$. Chronic Myeloid leukemia (CML) is suspected.
- 8.1. State five (05) findings in the blood smear of this patient when you perform the differential count (DC) if this patient has CML. (20 marks)
- 8.2. State the confirmatory test for CML and the sample needed to perform this test. (10marks)
- 8.3. The diagnosis was confirmed as CML. After many months of follow up, the peripheral laboratory receives his FBC for DC performance. The Medical Laboratory Technologist (MLT) performing DC noted many blast cells. Describe characteristic morphology of myeloblasts and state three (03) tests available to confirm presence of myeloblasts in peripheral blood. (20 marks)
- 8.4. Discuss current classification of leukemia and how the presence of acute leukemia is confirmed. (50 marks)